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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,510	10/24/2003	Chin Wen Wang	PO92328	7394

7590 10/18/2004

Yi-Wen Tseng  
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EXAMINER

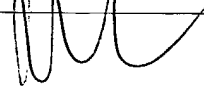
WALBERG, TERESA J

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,510	<b>Applicant(s)</b> WANG ET AL. 	
	<b>Examiner</b> Teresa J. Walberg	<b>Art Unit</b> 3742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lomolino, Sr. et al (5427,174) in view of Kroliczek et al (6,382,309).

Lomolino disclose (see Fig. 2A) a supporting structure for a planar heat pipe including a housing with an upper lid (120) and a lower lid (110) enclosing a working fluid, a support member (140) including a planar member perforated with a plurality of perforation regions (150, 150a, b, c, d), the perforation regions being in fluid communication with each other (at 135).

Lomolino does not disclose the members being sintered.

Kroliczek et al teaches using sintering to fasten together the parts of a planer heat pipe. See abstract, lines 13-16.

It would have been obvious in view of Kroliczek to sinter together the support member and the lids in the heat pipe of Lomolino to obtain improved wicking of the working fluid.

3. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lomolino, Sr. et al (5427,174) in view of Kroliczek et al (6,382,309) as applied to claims 1 and 2 above and further in view of Thomas (6,167,948).

Lemolino in view of Kroliczek disclose the claimed structure including a first perforation region located at a center of the planar member and a plurality of second perforation regions (150a, b, c, d) extending around the first perforation region (159), but do not disclose a third perforation region extending between the second perforation region and a periphery of the planar member.

Thomas teaches providing a third perforation region around first and second perforation regions in a heat pipe. See Fig. 29.

It would have been obvious in view of Thomas to provide a third perforation region in the heat pipe of Lemolino in view of Kroliczek to obtain improved heat transfer by providing an additional area for the fluid to condense.

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Furukawa et al (6,164,368), Ikeda et al (6,749,013), Yamamoto et al (2002/0056542), Tung et al (2003/0136550), and Lai (2004/0016534) are cited to show flat heat pipes.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 703-308-1327. The examiner can normally be reached on M-F 9:00 - 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 703-305-5766. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Teresa J. Walberg  
Primary Examiner  
Art Unit 3742

tjw